

## WHAT IS CLAIMED IS:

- 1/ Floating microwave filter in a waveguide structure, comprising filtering elements sandwiched between two foam half-bars that are placed inside  
5 a waveguide, wherein the filtering elements are metal features etched in the surface of one of the two foam half-bars and the waveguide is an internally hollowed-out block of foam having a metallized outer surface.
- 2/ Filter according to Claim 1, wherein the foam waveguide has a  
10 rectangular cross section and an internal cavity of circular cross section.
- 3/ Filter according to Claim 1, wherein the foam waveguide has a circular cross section and an internal cavity of rectangular cross section.
- 15 4/ Filter according to Claim 1, wherein the foam waveguide has a rectangular cross section and an internal cavity of rectangular cross section.
- 20 5/ Filter according to Claim 1, wherein the surface of the foam bar on which the metal features are placed is crenellated.
- 25 6/ Process for manufacturing a filter according to Claim 1, comprising a step of forming the metal features constituting the filtering elements by spraying a metal paint onto the surface of one of the foam half-bars.
- 7/ Process for manufacturing a filter according to claim 1, comprising a step of forming the metal features constituting the filtering elements by brushing on a metal paint onto the surface of one of the foam half-bars.